INFORMATION SHEET

ORDER NO. R5-2007-____
CITY OF SAN JOAQUIN
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

TENTATIVE ORDER

Background
The City of San Joaquin (Discharger or City) operates a wastewater collection, treatment, and disposal facility (WWTF) for the residents and small industry of the City of San Joaquin. The WWTF has an average daily flow of 0.3 million gallons per day (mgd).

The Discharger submitted a report of waste discharge (RWD) dated 23 January 2007 in support of a modification and expansion (hereafter Expansion Project) of the City WWTF. The existing WWTF provides secondary treatment of the wastewater stream. Treatment includes screening to remove large solids, aeration, and sedimentation. Effluent is discharged to 13.5 acres of unlined disposal ponds. The Discharger also uses an onsite "borrow pit" as an emergency effluent storage pond. The emergency storage pond is below grade, and will later be converted to a disposal pond.

Waste Discharge Requirements (WDRs) Order No. R5-2002-0103, adopted by the Regional Water Board on 7 June 2002, limits the discharge flow to 0.252 million gallons per day (mgd). The WDRs also establish quarterly effluent limitations for settleable solids (SS) and 5-day biological oxygen demand (BOD) of 0.2 mL/L and 40 mg/L, respectively. WDRs Order No. R5-2002-0103 does not reflect the configuration of the Expansion Project.

The Expansion Project consists of a new extended aeration treatment process that incorporates nitrogen removal. The Expansion Project will also include a modified pump station and headworks, a new blower building, sludge handling and storage facilities, modification of existing ponds, and construction of new disposal ponds.

Solids and Biosolids Disposal
Screenings from the headworks is placed in a dumpster prior to disposal at an offsite landfill. The City does not remove accumulated solids from the effluent disposal ponds, but instead occasionally drains and dries the ponds and disks the accumulated sludge in the pond bottom soils.

The City has not designed the sludge handling and storage facilities for the Expansion Project, but is considering installing sludge drying beds or mechanical dewatering equipment.

Groundwater Conditions
Regional groundwater flows southeasterly and the depth of water occurs about 90 feet below ground surface (bgs), according to information in *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by DWR in Spring 1996. In the discharge vicinity, the "modified E-clay" layer occurs about 550 feet bgs and is about 80 feet thick, according to Geology of Fresh Ground-Water Basin, Central Valley, California, with Texture Maps and Sections, by R. W. Page (U. S. Geological Survey Professional Paper 1401 – C, Washington, 1986). The extensive clay deposits that characterize area soils have caused localized perched groundwater conditions. Shallow groundwater in the discharge vicinity is characterized by high

salinity (i.e., EC concentrations of 2,000 to 4,000 µmhos/cm), according to information in *Areal Distribution of Electrical Conductivity in Shallow Groundwater*, *San Joaquin Valley*, published by DWR in Spring 1995.

Generally, water quality is better in the confined aquifer below the E-clay with the exception of iron, and manganese, which exceed the drinking water secondary maximum contaminant levels (MCL) specified in Title 22 of California Code of Regulations (CCR) of 0.3 mg/L, and 0.05 mg/L, respectively. Most domestic wells in the area are perforated below the E-clay, but some irrigation wells within the immediate vicinity of the WWTF are likely perforated above and below the E-clay to maximize well production.

The City is currently not required to monitor groundwater, so water quality data within the immediate vicinity of the WWTF in the uppermost groundwater and groundwater just above the E-clay layer is limited. Shallow groundwater in the uppermost aquifer is monitored at the American Avenue Landfill (Landfill), which is approximately five miles of the WWTF. Water quality data from background wells at the Landfill shows that it varies in quality with respect to salts, nutrients and metals.

Compliance History

In general, the City has failed to consistently comply with the flow limit of 0.252 mgd specified in WDRs Order No. R5-2002-0103. As a result, the Regional Water Board adopted Cease and Desist Order (CDO) No. R5-2002-0104 on 7 June 2002. Relevant Tasks required in the CDO are as follows:

Task	Due Date	Description
a.	15 November 2002	Submit a technical report and implementation schedule for increasing WWTF treatment capacity.
b.	15 November 2002	Submit a technical report containing a Title 22 Engineering Report for the recycling effluent.
c.	15 December 2002	Satisfy CEQA for the WWTF expansion and increased discharge flow.
d.	15 January 2003	Begin Construction of modifications to increase WWTF treatment capacity.
e.	15 June 2003	Complete Construction

The existing WWTF has a rated treatment and disposal capacity of 0.252 mgd. At the time CDO Order No. R5-2002-0104 was issued, the City planned to increase overall WWTF to 0.3 mgd; however, to obtain funding and to ensure adequate capacity for a 20 year planning period, the City later proposed a discharge flow increase to 0.5 mgd. The City's existing flows are 0.3 mgd, which exceeds the 0.252 mgd rated treatment capacity. The City has submitted water balances showing that it can accommodate existing discharge flows during average

rainfall years with the use of the emergency storage pond. These conditions will be temporary. Once the Expansion Project is complete, the Discharger will have sufficient storage capacity for annual rainfall with a 100-year return period.

Regarding Task 2.a, the Discharger submitted a RWD in January 2007 in support of an expansion of the WWTF; however, the final design is not complete.

Regarding Task 2.b, the City originally proposed to recycle effluent on adjacent properties; however, the City was unable to obtain long-term agreements with the landowners. Therefore, Task 2.b. no longer applies; as the City no longer propose to recycle effluent.

Regarding Task 2.c, the City has completed CEQA for its expansion and increase in discharge flow.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Basin Plan indicates the greatest long-term problem facing the entire Tulare Lake Basin is increasing salinity in groundwater, a process accelerated by man's activities and particularly affected by intensive irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. The Regional Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use, and has established an incremental EC limitation of 500 µmhos/cm or a maximum of 1,000 µmhos/cm, as the measure of the maximum permissible addition of salt constituents through use.

Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 µmhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

Antidegradation

The antidegradation directives of State Water Board Resolution No. 68-16 (Resolution No. 68-16), "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policy and procedures for complying with this directive are set forth in the basin plan.

Constituents typically elevated in domestic wastewater threaten the beneficial uses of groundwater if not adequately controlled by a treatment process or attenuated in the soil profile prior to discharge to first encountered groundwater. Discharges that rely on percolation for disposal may result in the percolation of excess organic carbon, and the mobilization of other constituents.

Although groundwater has not been characterized at the site, the Discharge will likely not degrade the beneficial uses of groundwater. With respect to salinity (as measured by EC),

groundwater within the vicinity of the discharge typically contains elevated EC. Monitoring of shallow groundwater underlying the WWTF and a salinity source control study will provide information regarding the discharge's consistency with Resolution No. 68-16 and the Basin Plan with respect to salinity. With respect to nitrate, concentrations of nitrate as nitrogen and total nitrogen in the effluent (based on three sampling events) are typically less than the water quality objective for nitrate as nitrogen of 10 mg/L. The Discharger proposes implementing treatment technology that will also result in an effluent total nitrogen concentration of less than 10 mg/L.

Treatment Technology and Control

The Expansion Project will provide treatment and control of the discharge that incorporates:

a. Secondary treatment of the wastewater;
b. A nitrogen removal treatment process;
c. Appropriate biosolids storage and disposal practices;
d. An Operation and Maintenance (O&M) manual; and
e. Certified operators to ensure proper operation and maintenance.

Title 27

Title 27, CCR, section 20005 et seq. (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27. Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), provided that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed Order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan.

CEQA

The Discharger certified a Mitigated Negative Declaration (MND) for the Exapsnion Project on 11 April 2007 in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended). The MND for the Expansion Project indicates that the discharge will comply with Regional Water Board regulations, which will mitigate any groundwater impacts. The Regional Water Board, as a responsible agency under CEQA, has reviewed the MND. To mitigate the Expansion Project's groundwater quality impacts to less than significant levels, the terms and conditions of this proposed Order and accompanying enforcement order are appropriate and necessary.

Proposed Order Terms and Conditions

Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions

The proposed Order prohibits discharge to surface waters and water drainage courses.

The proposed Order would carry over the current Order's monthly average daily discharge flow limitation until the City completes the Expansion Project. The proposed Order would carry over the previous Order's effluent limits for 5-day biological oxygen demand (BOD_5) of 40 mg/L (quarterly average), and 80 mg/L (daily maximum).

Once the Expansion Project is complete, the proposed Order would prescribe effluent limitations for BOD_5 and TSS of 40 mg/L or 80 percent removal of both, whichever more restrictive. These limitations are based on Basin Plan minimum performance standards for municipal facilities. The advanced secondary treatment technology being implemented, as part of the Expansion Project will result in an effluent of much higher quality than that reflected in the effluent limitations set forth in the WDRs.

The proposed Order would establish an effluent limitation for EC that reflects the Regional Water Board policy for managing the salts within the Tulare Lake Basin. The City is unable to immediately comply with the effluent limitations set forth in the Basin Plan (an effluent EC of 1,000 µmhos/cm or 500 µmhos/cm over source water), as the WDRs Order No. 2002-0103 did not establish an effluent limitation for EC. In the interim, the proposed WDRs would establish an EC effluent limitation of 1,500 µmhos/cm, which reflects the current discharge quality (based on the 2006 influent EC values). This performance-based limit will be re-opened upon completion of the provisions required by this proposed order. These provisions require the Discharger: (a) characterize groundwater quality, and (b) conduct and implement a salinity source control program. The program would identify sources of EC in the discharge, and the measures necessary to achieve the EC effluent limitation of 1,000 µmhos/cm or 500 µmhos/cm over source water.

The discharge requirements regarding dissolved oxygen and freeboard are consistent with Regional Water Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

The proposed WDRs would prescribe groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedances of these objectives or natural background water quality, whichever is greatest.

The proposed WDRs would require the City to conduct a groundwater investigation. This would include the installation of groundwater-monitoring wells to establish background groundwater quality, and determine if the existing discharge has impacted or has the potential to adversely impact the beneficial uses of groundwater. The WDRs would also require the Discharger assess its discharge on a constituent-by-constituent basis for consistency with Regional Water Board plans and policies, including Resolution No. 68-16. This assessment would identify those constituents that threaten the beneficial uses of groundwater. This may result in the WDRs being reopened and additional or modified effluent limitations imposed.

Monitoring Requirements
Section 13267 of the CWC authorizes the Regional Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State. In recent years there has been an increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes influent and effluent monitoring requirements, pond monitoring, groundwater monitoring, sludge monitoring, and water supply monitoring. The monitoring is necessary to evaluate groundwater quality and the extent of the degradation from the discharge.

The Discharger must monitor groundwater for constituents present in the discharge that are capable of reaching groundwater and violating groundwater limitations if its treatment and control, and any dependency of the process on sustained environmental attenuation, proves inadequate. For constituents listed in Section F, Groundwater Limitations, of the WDR, the Discharger must, as a part of each monitoring event, compare concentrations of constituents found in each monitoring well (or similar type of groundwater monitoring device) to the background concentrations or to prescribed numerical limitations to determine compliance.

Reopener
The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.

Proposed Enforcement Order

The Discharger cannot comply with the flow limitation in the existing Order and the proposed Order due to lack of treatment and disposal capacity. The compliance deadlines in the existing CDO have expired due, in part, to the lack of funding of the Expansion Project. Once the Expansion Project is complete, the Discharger should be able to comply with the terms and conditions of the proposed Order. An accompanying tentative Cease and Desist Order would require the Discharger to perform a series of tasks according to a time schedule to complete the Expansion Project.

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